

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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TITLE: HEADPHONE FOR SPATIAL SOUND REPRODUCTION

Amendment A: CLAIM AMENDMENTS

Claims 1 - 6 (canceled).

7. (new) An apparatus for spatial restitution of a sound to a listener comprising:

a pair of headphones each having a bracket defining a protective cushion cupping the respective ear of the listener, said protective cushion generally defining a hemispherical surface, the headphone having at least five speakers positioned on said hemispherical surface, each of the speakers being non-directional; and

an omnidirectional sound producing means connected to said pair of headphones, said sound producing means for reproducing a spatial quality of a sound by application of a Huygens Fresnel principle so that a sound surface corresponds to an addition of spherical curves emitted by the five speakers, two adjacent speakers of the five speakers being spaced by a distance less than a distance of one-half of a shortest wavelength corresponding to a given maximum frequency such that the sound is perceived by the listener as being continuous for frequencies less than said given maximum frequency, said given maximum frequency being a frequency that is audible to the ear of the listener.

8. (new) The apparatus of Claim 7, said at least five speakers comprising at least six speakers.

9. (new) The apparatus of Claim 7, said minimal frequency being 5kHz, the two adjacent speakers being spaced by a distance of no more than 3 centimeters.

10. (new) The apparatus of Claim 7, the headphone being open, said bracket comprising a horizontal band and a vertical band.

11. (new) The apparatus of Claim 7, the headphone being closed, said bracket defining a shell having a cushion surface suitable for holding the speakers.

12. (new) An apparatus for recording of a sound intended for ulterior spatial reproduction comprising:

a pair of headphones each having a bracket defining a protective cupping the respective ear of the user, said protective cushion defining a generally hemispherical surface, the headphone having at least five omnidirectional or cardioid microphones oriented toward an exterior of the headphones, the microphones being positioned on said generally hemispherical surface; and

an omnidirectional sound producing means connected to said pair of headphones, said sound producing means for reproducing a spatial quality of a sound by application of a Huygens Fresnel principle so that a sound surface corresponds to an addition of spherical waves received by the microphones, two adjacent microphones of the five microphones being spaced by a distance less than a distance of one-half of a short wavelength corresponding to a given maximum frequency, said given maximum frequency being a frequency that is humanly audible.